I claim:

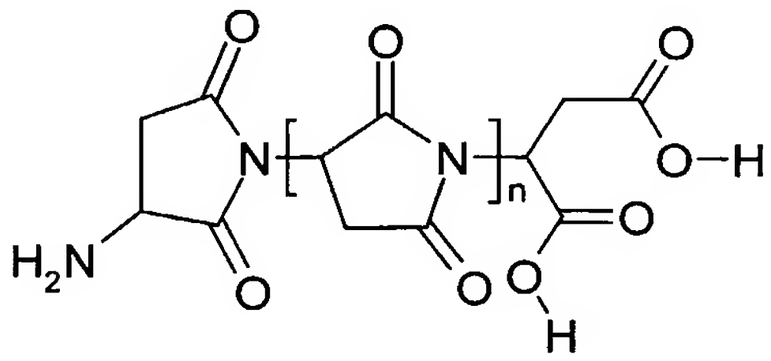
1. A lapping composition formed by mixing in water an acid selected from the group consisting of citric acid, glycolic acid, tartaric acid, and gallic acid, and a base selected from the group consisting of monoethanolamine, triethanolamine, diglycolamine, guanidine, choline, and potassium hydroxide.

2. The composition of claim 1, further comprising poly sodium aspartate.

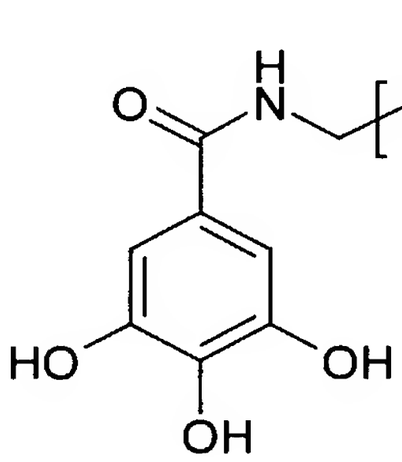
3. The composition of claim 1, further comprising poly sodium aspartate –co-diglycol aspartamide.

4. A composition useful for removing swarf from the surface of a ceramic and/or metallic object while that surface is being lapped, wherein said composition is formed by adding to gallic acid in water a base selected from the group consisting of monoethanolamine, potassium hydroxide, and triethanolamine.

5. A lapping composition formed by adding to a polysuccinimide having structure



a gallamide having the structure

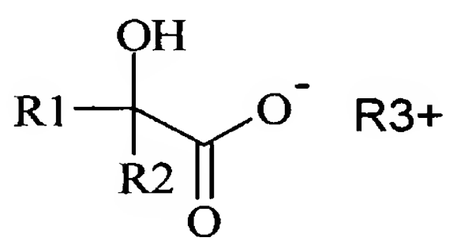


wherein n is between 5 and 30 and wherein m is greater than or equal to 1 and less than or equal to about 10, and wherein R13 is selected from the group consisting of hydrogen, alkyl, oxyalkyl, phenyl, and oxyphenyl.

6. The lapping composition of claim 5, wherein said polysuccinimide has a molecular weight of about 3,000 Daltons.

7. The lapping composition of claim 5, formed by adding about 0.25(n) equivalents of said gallamide to said polysuccinimide in DMSO.

8. A lapping composition comprising a salt having the structure



wherein R1 is selected from the group consisting of hydrogen, methyl, and CH_2-CO_2^- $R4^+$, and wherein R2 is selected from the group consisting of hydrogen, CH_2-CO_2^- $R5^+$, and C(H)(OH)-CO2$^-$ $R6^+$, and wherein $R3^+$, $R4^+$, $R5^+$, and $R6^+$, are each selected from the group consisting of an alkali metal cation, an alkaline earth cation, a diglycolammonium cation, a monoethanolammonium cation, a triethanolammonium cation, a tetramethylammonium cation, a guanidinium cation, and a choline cation.

9. The composition of claim 8, further comprising poly sodium aspartate.

10. The composition of claim 8 and 9, further comprising poly sodium aspartate-co-diglycol aspartamide.

11. A lapping composition formed by:

adding citric acid to water to form a first mixture;

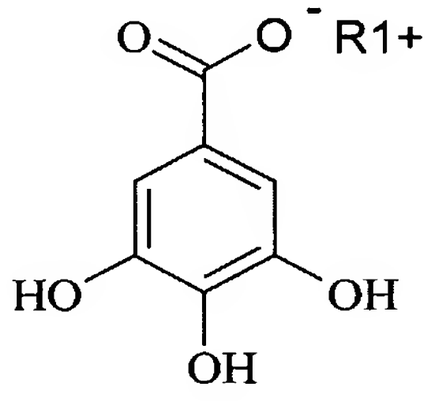
adding monoethanolamine to said first mixture;

adding gallic acid to water to form a second mixture;

adding potassium hydroxide to said second mixture;

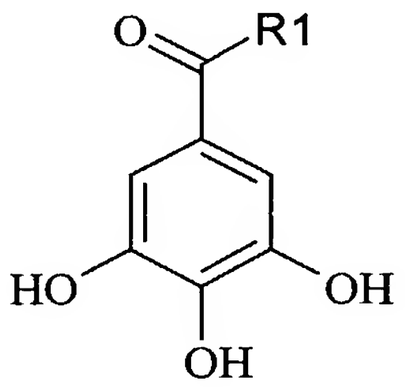
combining said first mixture and said second mixture.

11. A lapping composition comprising a salt having the structure



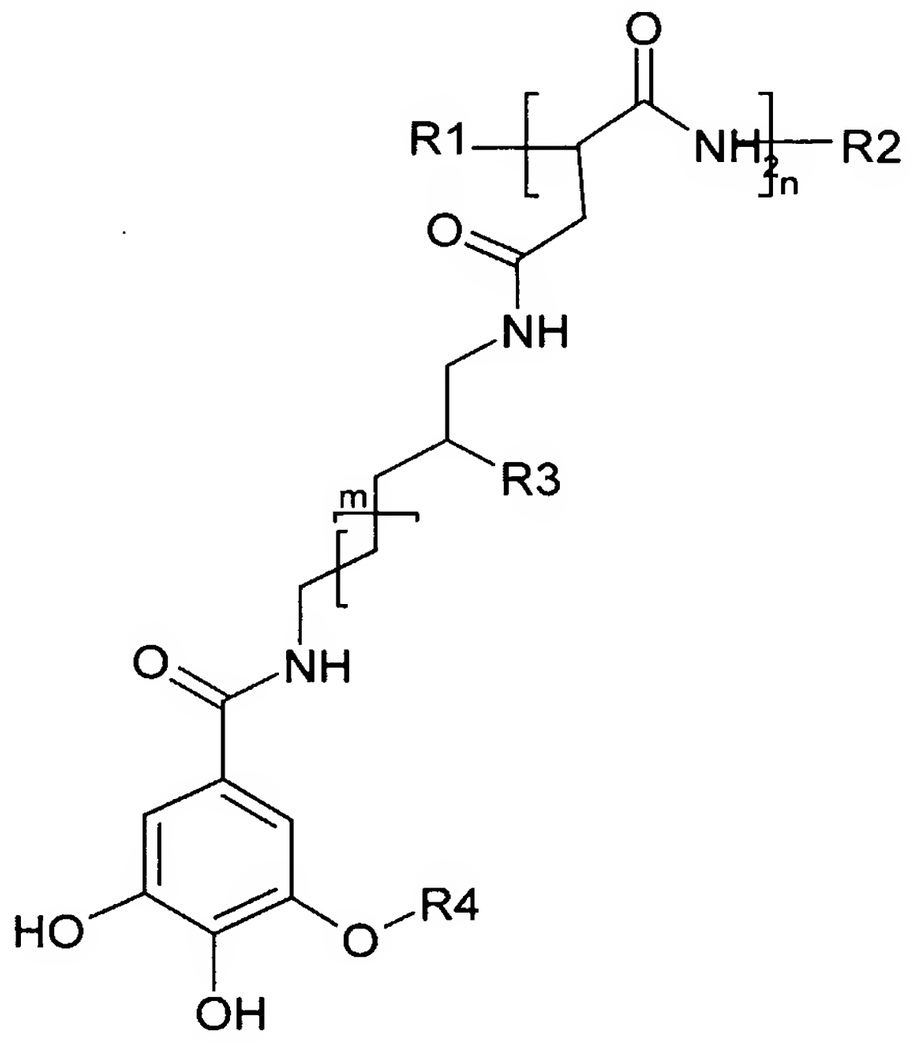
wherein R1+ is selected from the group consisting of an alkali metal cation, an alkaline earth cation, a diglycolammonium cation, a monoethanolammonium cation, a triethanolammonium cation, a tetramethylammonium cation, a guanidinium cation, and a choline cation.

12. A lapping composition comprising a compound having the structure



wherein R1 is selected from the group consisting of OH and N(R2)(R3), wherein R2 and R3 are each selected from the group consisting of alkyl and phenyl.

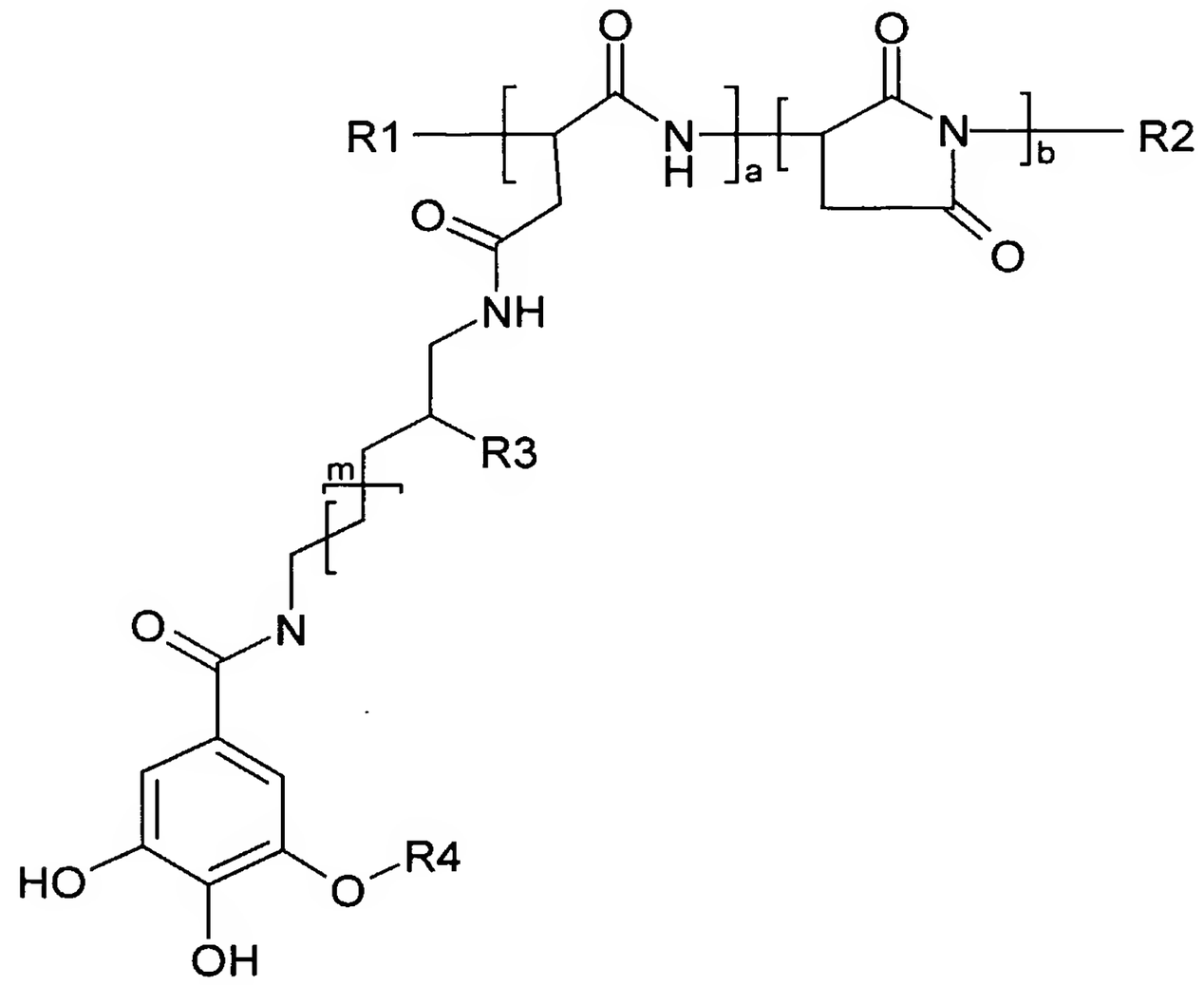
13. A lapping composition comprising a polymeric substituted gallamide having the structure



wherein R1 is selected from the group consisting of alkyl, aryl, succinimide, aspartic acid, and aspartate salt, and wherein R2 is selected from the group consisting of alkyl, aryl, succinimide, aspartic acid, and aspartate salt, and wherein n is between 1 and

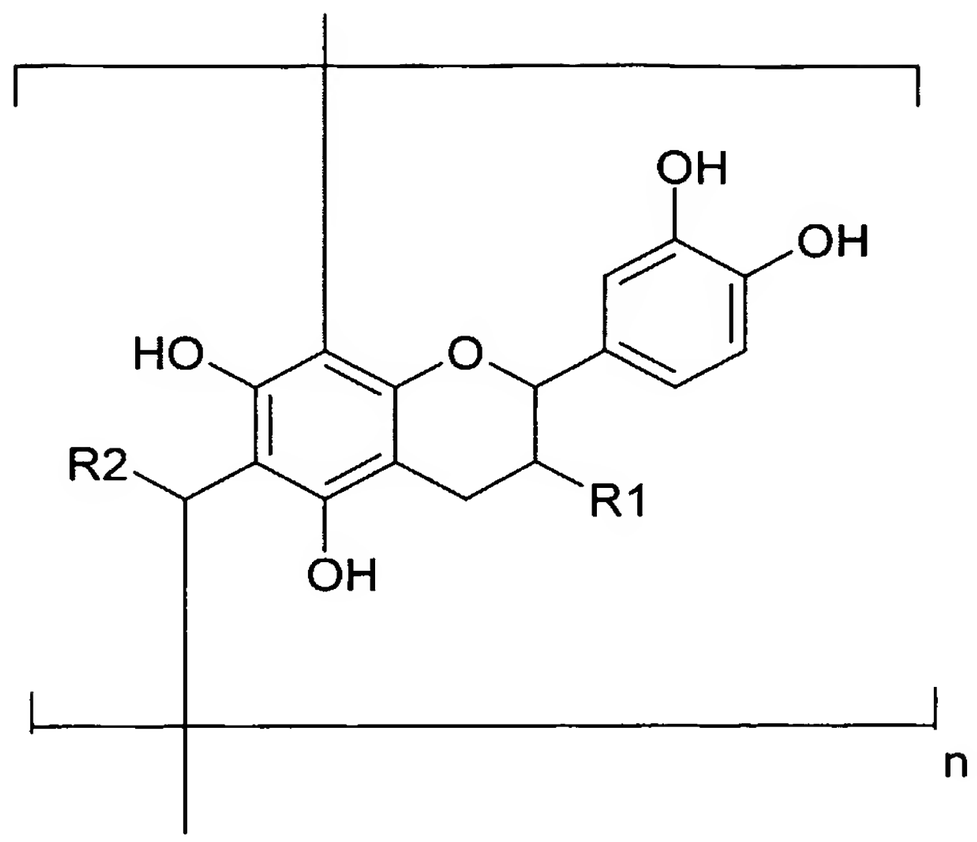
5000, and wherein m is greater than or equal to 1 and less than or equal to about 10, and wherein R3 is selected from the group consisting of hydrogen, alkyl, oxyalkyl, phenyl, and oxyphenyl, and wherein R4 is selected from the group consisting of hydrogen, methyl, and $-CH_2$-COOH.

14. A lapping composition comprising a polymeric substituted gallamide having the structure



wherein R1 is selected from the group consisting of alkyl, aryl, succinimide, aspartic acid, and aspartate salt, and wherein R2 is selected from the group consisting of alkyl, aryl, succinimide, aspartic acid, and aspartate salt, and wherein (a+b) is between 4 and 5000 and wherein a is about (0.25)b, and wherein m is greater than or equal to 1 and less than or equal to about 10, and wherein R3 is selected from the group consisting of hydrogen, alkyl, oxyalkyl, phenyl, and oxyphenyl, and wherein R4 is selected from the group consisting of hydrogen and methyl.

15. A lapping composition comprising a polymeric material having the structure



wherein R1 is selected from the group consisting of alkyl, phenyl, COOH, and COO-alkyl, and wherein R2 is selected from the group consisting of OH, and O-galloyl, and wherein n is between 1 and 5000.

16. A method to shape the surface of a substrate, comprising the steps of:

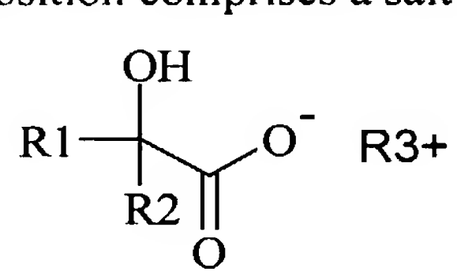
providing a substrate, wherein said substrate comprises a target surface, wherein that target surface comprises a metal surface, a ceramic surface, or a combination thereof;

providing one or more abrasives;

providing a lapping composition;

contacting said target surface with said one or more abrasives while contacting said target surface with said lapping composition;

wherein said lapping composition comprises a salt having the structure



wherein R1 is selected from the group consisting of hydrogen, methyl, and CH_2-CO_2^- $R4^+$, and wherein R2 is selected from the group consisting of hydrogen, CH_2-CO_2^- $R5^+$, and C(H)(OH)-CO2$^-$ $R6^+$, and wherein $R3^+$, $R4^+$, $R5^+$, and $R6^+$, are each selected from the group consisting of an alkali metal cation, an alkaline earth cation, a

diglycolammonium cation, a monoethanolammonium cation, a triethanolammonium cation, a tetramethylammonium cation, a guanidinium cation, and a choline cation.

17. The lapping composition of claim 16, further comprising poly sodium aspartate.

18. The lapping composition of claims 16 and 17, further comprising poly sodium aspartate-co-diglycol aspartamide.

19. A method to shape the surface of a substrate, comprising the steps of:

providing a substrate, wherein said substrate comprises a target surface, wherein that target surface comprises a metal surface, a ceramic surface, or a combination thereof;

providing one or more abrasives;

providing a lapping composition;

contacting said target surface with said one or more abrasives while contacting said target surface with said lapping composition;

wherein said lapping composition is formed by:

adding citric acid to water to form a first mixture;

adding monoethanolamine to said first mixture;

adding gallic acid to water to form a second mixture;

adding potassium hydroxide to said second mixture;

combining said first mixture and said second mixture.

20. A method to shape the surface of a substrate, comprising the steps of:

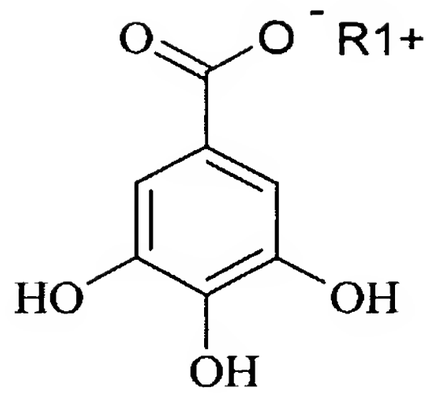
providing a substrate, wherein said substrate comprises a target surface, wherein that target surface comprises a metal surface, a ceramic surface, or a combination thereof;

providing one or more abrasives;

providing a lapping composition;

contacting said target surface with said one or more abrasives while contacting said target surface with said lapping composition;

wherein said lapping composition comprises a salt having the structure



wherein R1+ is selected from the group consisting of an alkali metal cation, an alkaline earth cation, a diglycolammonium cation, a monoethanolammonium cation, a triethanolammonium cation, a tetramethylammonium cation, a guanidinium cation, and a choline cation.

21. A method to shape the surface of a substrate, comprising the steps of:

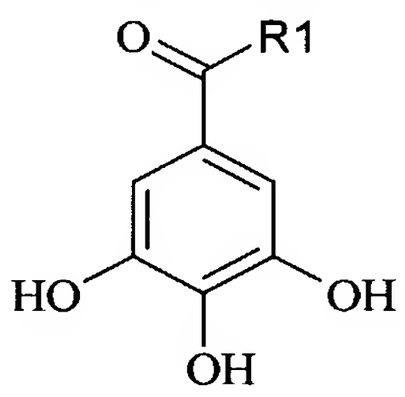
providing a substrate, wherein said substrate comprises a target surface, wherein that target surface comprises a metal surface, a ceramic surface, or a combination thereof;

providing one or more abrasives;

providing a lapping composition;

contacting said target surface with said one or more abrasives while contacting said target surface with said lapping composition;

wherein said lapping composition comprises a compound having the structure



wherein R1 is selected from the group consisting of OH and N(R2)(R3), wherein R2 and R3 are each selected from the group consisting of alkyl and phenyl.

22. A method to shape the surface of a substrate, comprising the steps of:

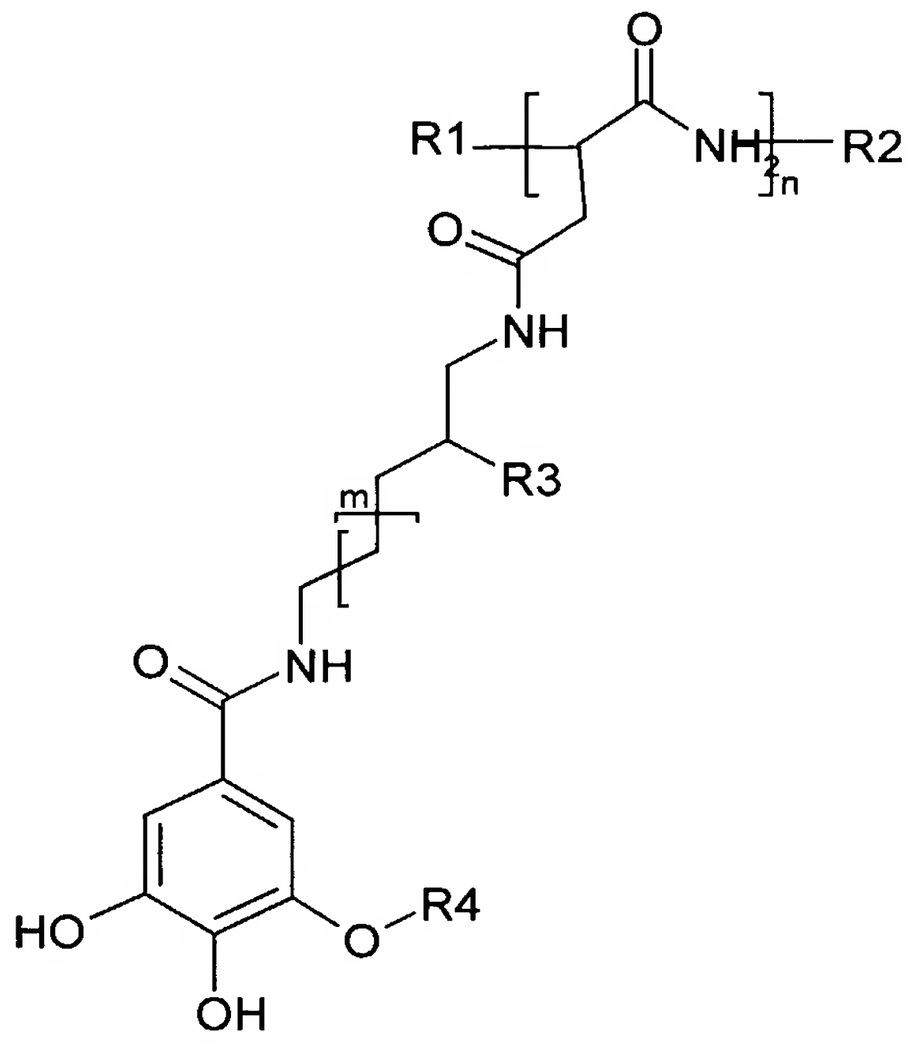
providing a substrate, wherein said substrate comprises a target surface, wherein that target surface comprises a metal surface, a ceramic surface, or a combination thereof;

providing one or more abrasives;

providing a lapping composition;

contacting said target surface with said one or more abrasives while contacting said target surface with said lapping composition;

wherein said lapping composition comprises a polymeric substituted gallamide having the structure



wherein R1 is selected from the group consisting of alkyl, aryl, succinimide, aspartic acid, and aspartate salt, and wherein R2 is selected from the group consisting of alkyl, aryl, succinimide, aspartic acid, and aspartate salt, and wherein n is between 1 and 5000 and wherein m is greater than or equal to 1 and less than or equal to about 10, and wherein R3 is selected from the group consisting of hydrogen, alkyl, oxyalkyl, phenyl, and oxyphenyl, and wherein R4 is selected from the group consisting of hydrogen, methyl, and $-CH_2$-COOH.

23. A method to shape the surface of a substrate, comprising the steps of:

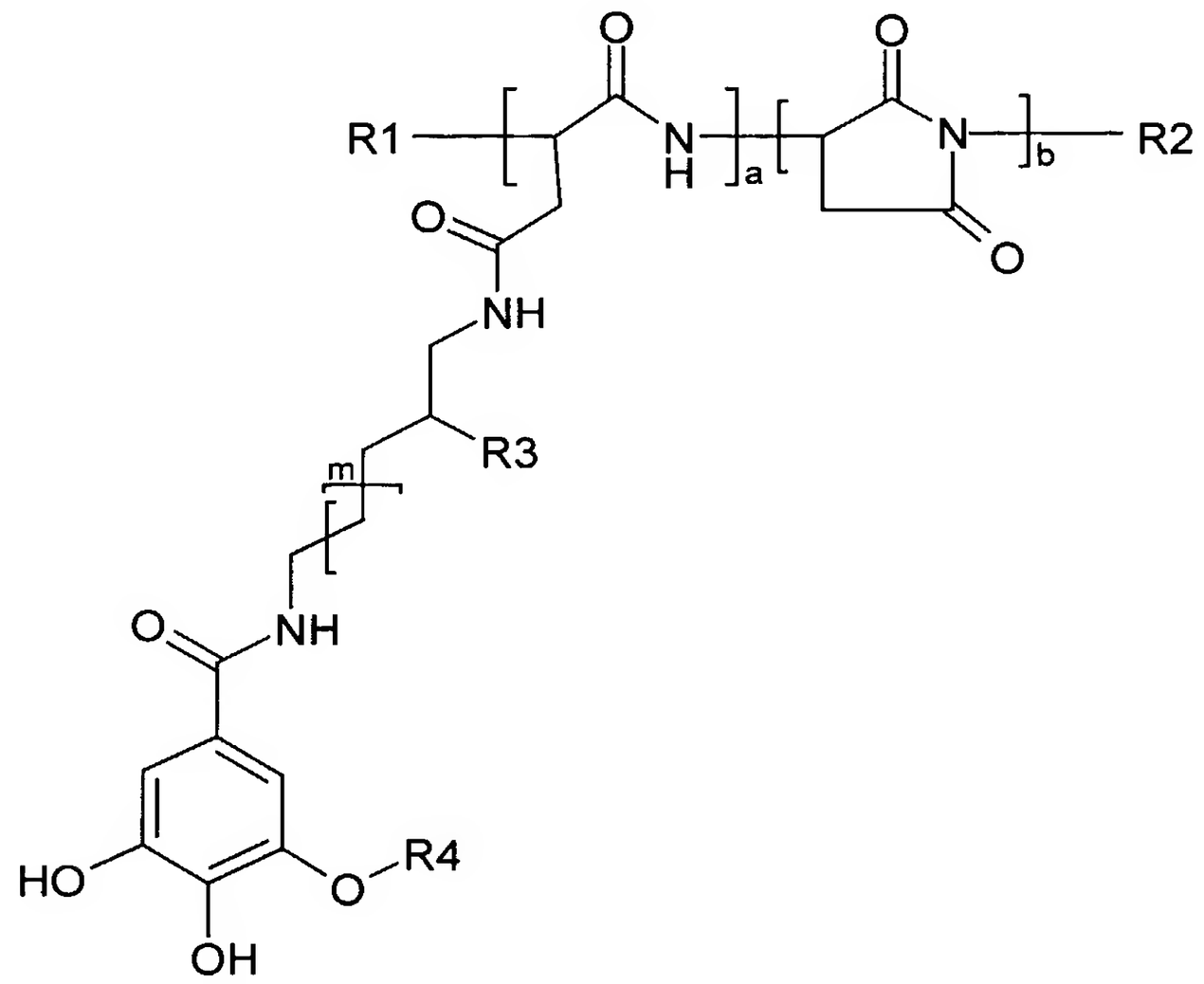
providing a substrate, wherein said substrate comprises a target surface, wherein that target surface comprises a metal surface, a ceramic surface, or a combination thereof;

providing one or more abrasives;

providing a lapping composition;

contacting said target surface with said one or more abrasives while contacting said target surface with said lapping composition;

wherein said lapping composition comprises a polymeric substituted gallamide having the structure



wherein R1 is selected from the group consisting of alkyl, aryl, succinimide, aspartic acid, and aspartate salt, and wherein R2 is selected from the group consisting of alkyl, aryl, succinimide, aspartic acid, and aspartate salt, and wherein (a+b) is between 4 and 5000, and wherein a is about (0.25)b, and wherein m is greater than or equal to 1 and less than or equal to about 10, and wherein R3 is selected from the group consisting of hydrogen, alkyl, oxyalkyl, phenyl, and oxyphenyl, and wherein R4 is selected from the group consisting of hydrogen and methyl.

24. A method to shape the surface of a substrate, comprising the steps of:

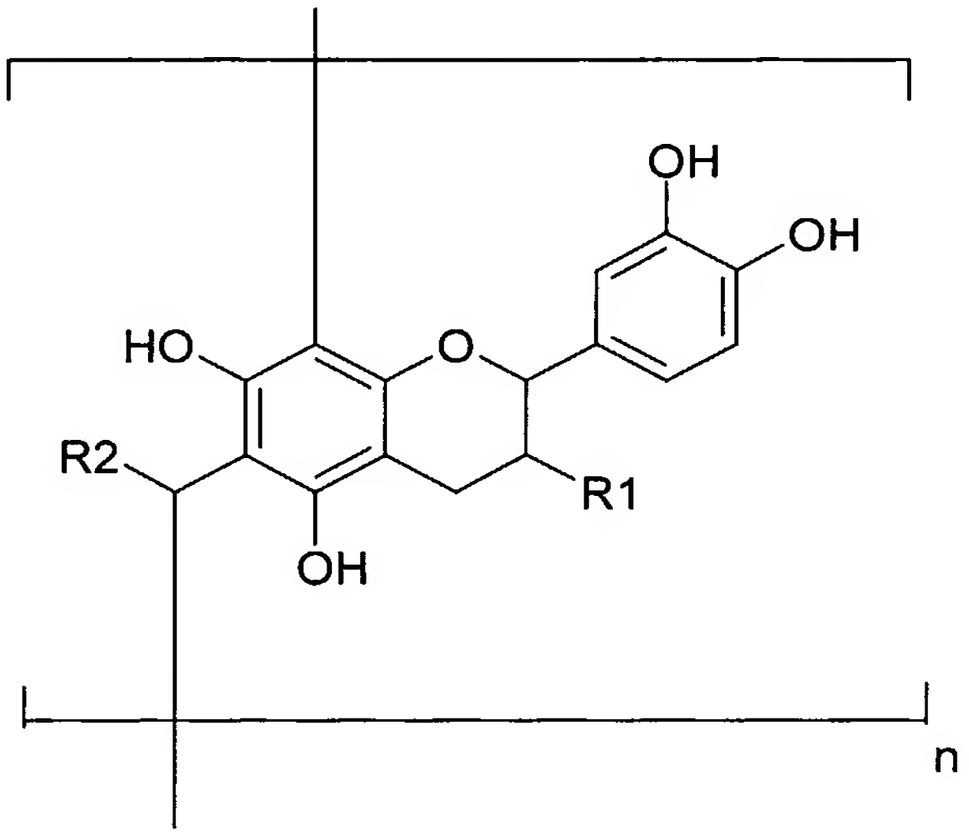
providing a substrate, wherein said substrate comprises a target surface, wherein that target surface comprises a metal surface, a ceramic surface, or a combination thereof;

providing one or more abrasives;

providing a lapping composition;

contacting said target surface with said one or more abrasives while contacting said target surface with said lapping composition;

wherein said lapping composition comprises a polymeric material having the structure



wherein R1 is selected from the group consisting of alkyl, phenyl, COOH, and COO-alkyl, and wherein R2 is selected from the group consisting of OH, and O-galloyl, and wherein n is between 1 and 5000.